

drying" to which is referred especially involves use of conventional domestic brands of programmable laundry dryers (these are occasionally integral with the washing machine), also using their conventional fabric loads, temperatures and operating times.

The following nonlimiting examples illustrate the use of a typical ester composition of the invention (that of Example III) as a soil release agent for thru-the-wash application to polyester fabrics.

EXAMPLES XVI-XVIII

Granular detergent compositions comprise the following ingredients:

Ingredient	Percent (Wt)		
	XVI	XVII	XVIII
C ₁₁ -C ₁₃ alkyl benzene sulfonate	7.5	4.0	12.0
C ₁₂ -C ₁₃ alcohol ethoxylate (EO 6.5)	1.0	0.0	1.0
Tallow alcohol sulfate	7.5	6.5	7.5
Sodium tripolyphosphate	25.0	39.0	0.0
Sodium pyrophosphate	6.0	0.0	0.0
Zeolite A, hydrate (1-10 micron size)	0.0	0.0	29.0
Sodium carbonate	17.0	12.0	17.0
Sodium silicate (1:6 ratio NaO/SiO ₂)	5.0	6.0	2.0
Balance (can, for example, include water, soil dispersant, bleach, optical brightener, perfume, suds suppressor or the like)	—to 98.0—		

Aqueous crutcher mixes of the detergent compositions are prepared and spray-dried, so that they contain the ingredients tabulated, at the levels shown. The ester composition of Example I is pulverized in an amount sufficient for use at a level of 2% by weight in conjunction with the detergent compositions.

The detergent granules and ester composition are added (98 parts/2 parts by weight, respectively), together with a 6 lb. load of previously laundered and soiled fabrics (load composition: 20 wt. % polyester fabrics/80 wt. % cotton fabrics), to a Sears KEN-MORE washing machine. Actual weights of detergent and ester compositions are taken to provide a 1280 ppm concentration of the former and 30 ppm concentration of the latter in the 17 l water-fill machine. The water used has 7 grains/gallon hardness and a pH of 7 to 7.5 prior to (about 9 to about 10.5 after) addition of the detergent and ester compositions.

The fabrics are laundered at 35° C. (95° F.) for a full cycle (12 min.) and rinsed at 21° C. (70° F.). The fabrics are then line dried and are exposed to a variety of soils (by wear or controlled application). The entire cycle of laundering and soiling is repeated several times for each of the detergent compositions, with separate fabric bundles reserved for use with each of the detergent compositions. Excellent results are obtained in all cases (XVI-XVIII), especially in that polyester or polyester-containing fabrics laundered one or, more preferably, several times as described, display significantly improved removal of soils (especially oleophilic types) during laundering compared with fabrics which have not been exposed to the esters of the invention.

What is claimed is:

1. A water-soluble or water-dispersible, oligomeric or polymeric composition which comprises from about 25% to 100% of a substantially linear, sulfoaroyl end-capped ester having molecular weight ranging from about 500 to about 20,000; wherein said ester consists essentially of, on a molar basis,

(i) from about 1 to about 2 moles of sulfobenzoyl end-capping units of the formula (MO₃S)(C₆H₄)-C(O)— wherein M is a salt-forming cation;

(ii) from about 2 to about 50 moles of oxy-1,2-propyleneoxy units or mixtures thereof with oxyethyleneoxy units provided that the oxy-1,2-propyleneoxy: oxyethyleneoxy mole ratio is in the range from about 1:10 to about 1.0; and

(iii) from about 1 to about 40 moles of terephthaloyl units provided that the mole ratio of said units identified by (ii) and (iii) is from about 2:1 to about 1:24; and which further optionally comprises, per mole of said ester,

(iv) from 0 to about 30 moles of 5-sulfoisophthaloyl units of the formula —(O)C(C₆H₃)(SO₃M)C(O)— wherein M is a salt-forming cation; or

(v) from 0 to about 25 moles of poly(oxyethylene)oxy units of the formula —(OCH₂CH₂)_nO— wherein the average degree of ethoxylation n ranges from 2 to about 100; or

(vi) from 0 to about 30 moles of a mixture of said units (iv) and (v) at a (iv):(v) mole ratio of from about 29:1 to about 1:29;

provided that when said ester consists essentially of said units identified by (i), (ii), and (iii), the content of said terephthaloyl units ranges from about 1 mole to about 8 moles; when said ester consists essentially of said units identified by (i), (ii), (iii) and (iv); the content of said 5-sulfoisophthaloyl units ranges from about 0.05 moles to about 18 moles; when said ester consists essentially of said units identified by (i), (ii), (iii), and (v), the content of said poly(oxyethylene)oxy units ranges from about 0.05 moles to about 10 moles; and further provided that when said ester consists essentially of said units identified by (i), (ii) and (iii) together with said units identified by said mixture (vi) of said units (iv) and (v), the content of said units identified by (iv) and (v) together ranges from about 0.1 moles to about 20 moles.

2. The composition of claim 1 wherein not more than about 0.15 mole fraction of said sulfobenzoyl end-capping units are in paraform.

3. The composition of claim 1 wherein said sulfobenzoyl end-capping units are essentially in ortho- or metaform.

4. The composition of claim 1 wherein said ester is essentially in the doubly end-capped form, comprising, per mole of said ester, about 2 moles of said sulfobenzoyl end-capping units.

5. The composition of claim 1 wherein said units (ii) are present in an oxy-1,2-propyleneoxy to oxyethyleneoxy mole ratio ranging from about 1:10 to about 1:0.

6. The composition of claim 1 wherein said units (ii) consist essentially of oxy-1,2-propyleneoxy units.

7. The composition of claim 1 wherein said ester consists essentially of said units (i) and (ii) and (iii), and has a linear backbone formed from ester-bond-connected units (ii) and (iii).

8. The composition of claim 1 wherein said ester consists essentially of said units (i), (ii), (iii) and (iv), the level of said units (iv) being at least 0.02 moles per mole of said ester; said ester further being characterized in that it has a linear backbone formed from ester-bond connected units (ii), (iii) and (iv).

9. The composition of claim 1 wherein said ester consists essentially of said units (i), (ii), (iii), and (v), the level of said units (v) being at least 0.02 moles per mole of said ester; said ester further being characterized in